



WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTE

DISTR. : LIMITED  
DISTR. : LIMITEE

WHO/DAP/89.2

ORIGINAL: ENGLISH

REPORT OF A WORKSHOP ON  
SOCIAL SCIENCE RESEARCH  
APPLIED TO ESSENTIAL DRUGS

Nairobi, Kenya  
26-30 September 1988



This document is not issued to the general public, and all rights are reserved by the World Health Organization (WHO). The document may not be reviewed, abstracted, quoted, reproduced or translated, in part or in whole, without the prior written permission of WHO. No part of this document may be stored in a retrieval system or transmitted in any form or by any means - electronic, mechanical or other without the prior written permission of WHO.

The views expressed in documents by named authors are solely the responsibility of those authors.

Ce document n'est pas destiné à être distribué au grand public et tous les droits y afférents sont réservés par l'Organisation mondiale de la Santé (OMS). Il ne peut être commenté, résumé, cité, reproduit ou traduit, partiellement ou en totalité, sans une autorisation préalable écrite de l'OMS. Aucune partie ne doit être chargée dans un système de recherche documentaire ou diffusée sous quelque forme ou par quelque moyen que ce soit - électronique, mécanique, ou autre - sans une autorisation préalable écrite de l'OMS.

Les opinions exprimées dans les documents par des auteurs cités nommément n'engagent que lesdits auteurs.



12304  
CPHE -  
CLIC

**SOCHARA**

**Community Health**

**Library and Information Centre (CLIC)**

Centre for Public Health and Equity

No. 27, 1st Floor, 6th Cross, 1st Main,  
1st Block, Koramangala, Bengaluru - 34

Tel : 080 - 41280009

email : clic@sochara.org / cphe@sochara.org

www.sochara.org



## LIST OF CONTENTS

	<u>Page</u>
1. INTRODUCTION . . . . .	1
1.1 Background and objectives . . . . .	1
1.2 Summary of the workshop . . . . .	1
2. DESCRIPTION OF THE RESEARCH PROJECTS . . . . .	3
2.1 The socio-cultural projects . . . . .	3
2.2 The socio-economic projects . . . . .	6
3. RESEARCH METHODOLOGIES . . . . .	10
3.1 Overview of methodologies used in the research projects . . . . .	10
3.2 Some methodological suggestions for research . . . . .	11
3.2.1 Objectives . . . . .	11
3.2.2 Study design . . . . .	12
3.2.3 Sampling process . . . . .	12
3.2.4 Data collection and analysis . . . . .	12
3.3 Relationship between qualitative and quantitative data: a summary . . . . .	16
4. UTILIZATION AND ACTIVE DISSEMINATION OF RESEARCH RESULTS . . . . .	19
4.1 While designing the research . . . . .	19
4.2 During implementation . . . . .	19
4.3 Final phase . . . . .	20
4.4 The role of WHO . . . . .	20
5. FUTURE RESEARCH PRIORITIES IN THE DRUG FIELD . . . . .	21
5.1 Identification of research priorities . . . . .	21
5.2 Strategies for promoting research . . . . .	21
6. CONCLUDING REMARKS . . . . .	25
ANNEX 1: Agenda . . . . .	27
ANNEX 2: List of participants . . . . .	29
ANNEX 3: Evaluation . . . . .	32
ANNEX 4: Schematic overview of methods for field research on drugs use . . . . .	34
ANNEX 5: Definitions and stages in the sampling process . . . . .	35
ANNEX 6: Checklist for the design of questionnaires . . . . .	38
ANNEX 7: Dissemination of research results . . . . .	39
ANNEX 8: List of periodicals . . . . .	40
ANNEX 9: WHO list of research priorities . . . . .	41

LIST OF CONTENTS

1	INTRODUCTION	1
1	1.1 Background and objectives	1
1	1.2 Summary of the document	1
2	2. DESCRIPTION OF THE RESEARCH PROJECTS	2
2	2.1 The basic research projects	2
2	2.2 The applied research projects	2
3	3. RESEARCH METHODOLOGY	3
3	3.1 Overview of methodology used in the research	3
3	3.2 Data collection and analysis	3
3	3.3 Statistical analysis	3
3	3.4 Data interpretation and conclusions	3
3	3.5 Relationship between research and practice	3
3	3.6 Summary of methodology	3
3	3.7 Summary of methodology	3
3	3.8 Summary of methodology	3
3	3.9 Summary of methodology	3
3	3.10 Summary of methodology	3
3	3.11 Summary of methodology	3
3	3.12 Summary of methodology	3
3	3.13 Summary of methodology	3
3	3.14 Summary of methodology	3
3	3.15 Summary of methodology	3
3	3.16 Summary of methodology	3
3	3.17 Summary of methodology	3
3	3.18 Summary of methodology	3
3	3.19 Summary of methodology	3
3	3.20 Summary of methodology	3
3	3.21 Summary of methodology	3
3	3.22 Summary of methodology	3
3	3.23 Summary of methodology	3
3	3.24 Summary of methodology	3
3	3.25 Summary of methodology	3
3	3.26 Summary of methodology	3
3	3.27 Summary of methodology	3
3	3.28 Summary of methodology	3
3	3.29 Summary of methodology	3
3	3.30 Summary of methodology	3
3	3.31 Summary of methodology	3
3	3.32 Summary of methodology	3
3	3.33 Summary of methodology	3
3	3.34 Summary of methodology	3
3	3.35 Summary of methodology	3
3	3.36 Summary of methodology	3
3	3.37 Summary of methodology	3
3	3.38 Summary of methodology	3
3	3.39 Summary of methodology	3
3	3.40 Summary of methodology	3
3	3.41 Summary of methodology	3
3	3.42 Summary of methodology	3
3	3.43 Summary of methodology	3
3	3.44 Summary of methodology	3
3	3.45 Summary of methodology	3
3	3.46 Summary of methodology	3
3	3.47 Summary of methodology	3
3	3.48 Summary of methodology	3
3	3.49 Summary of methodology	3
3	3.50 Summary of methodology	3
3	3.51 Summary of methodology	3
3	3.52 Summary of methodology	3
3	3.53 Summary of methodology	3
3	3.54 Summary of methodology	3
3	3.55 Summary of methodology	3
3	3.56 Summary of methodology	3
3	3.57 Summary of methodology	3
3	3.58 Summary of methodology	3
3	3.59 Summary of methodology	3
3	3.60 Summary of methodology	3
3	3.61 Summary of methodology	3
3	3.62 Summary of methodology	3
3	3.63 Summary of methodology	3
3	3.64 Summary of methodology	3
3	3.65 Summary of methodology	3
3	3.66 Summary of methodology	3
3	3.67 Summary of methodology	3
3	3.68 Summary of methodology	3
3	3.69 Summary of methodology	3
3	3.70 Summary of methodology	3
3	3.71 Summary of methodology	3
3	3.72 Summary of methodology	3
3	3.73 Summary of methodology	3
3	3.74 Summary of methodology	3
3	3.75 Summary of methodology	3
3	3.76 Summary of methodology	3
3	3.77 Summary of methodology	3
3	3.78 Summary of methodology	3
3	3.79 Summary of methodology	3
3	3.80 Summary of methodology	3
3	3.81 Summary of methodology	3
3	3.82 Summary of methodology	3
3	3.83 Summary of methodology	3
3	3.84 Summary of methodology	3
3	3.85 Summary of methodology	3
3	3.86 Summary of methodology	3
3	3.87 Summary of methodology	3
3	3.88 Summary of methodology	3
3	3.89 Summary of methodology	3
3	3.90 Summary of methodology	3
3	3.91 Summary of methodology	3
3	3.92 Summary of methodology	3
3	3.93 Summary of methodology	3
3	3.94 Summary of methodology	3
3	3.95 Summary of methodology	3
3	3.96 Summary of methodology	3
3	3.97 Summary of methodology	3
3	3.98 Summary of methodology	3
3	3.99 Summary of methodology	3
3	3.100 Summary of methodology	3



## 1. INTRODUCTION

### 1.1 Background and objectives

During the past four years the WHO Action Programme on Essential Drugs and Vaccines has strengthened its research component in order to find solutions to some of the very pressing problems faced by developing countries in the field of drugs and to reach the objectives of availability and rational use of drugs.

The research component has three objectives:

- to supply data and information to the Programme;
- to improve the performance of national essential drugs programmes;
- to strengthen research capabilities in developing countries.

Projects are being carried out in four fields of research namely: policy issues, economics, drug supply and technology transfer, and the use of drugs. Two such projects, dealing with how pharmaceuticals are used and factors influencing consumers' attitudes and behaviours, are in various phases of implementation in several Asian and African countries.

These specifically cover:

- (a) Household expenditures on medicine.
- (b) People's perception and use of drugs.

It was felt important to provide a forum for exchange of information among the principal investigators, for assisting them in solving some of the methodological problems they face and for benefitting from their knowledge and experience to identify future research priorities (annex 1).

The major objectives of the workshop were therefore:

- to review the two social science research projects funded by DAP;
- to strengthen capabilities in research methodologies;
- to ensure the impact and use of the research results;
- to identify future research priorities.

### 1.2 Summary of the workshop

The workshop took place in Nairobi, Kenya, from 26-30 September 1988. It was organized by the WHO Action Programme on Essential Drugs and attended by principal investigators from Benin, Kenya, Nepal, Senegal, Sri Lanka, United Republic of Tanzania, Thailand and Zimbabwe. In addition to the WHO Secretariat four resource persons from Ghana, the Netherlands, Nigeria and the United States of America were present to assist the participants on methodological issues (annex 2).



After a brief presentation by the investigators on the progress of their research, a long session was devoted to the methodological problems encountered. The resource persons made suggestions on how to increase the quality of the methodologies used. Explanations were given on data collection techniques, sampling, questionnaires and qualitative methods. The very informal atmosphere of the workshop facilitated frank discussions and the real sharing of experience. The use and dissemination of the research results and ways to involve all concerned from the beginning were discussed through a series of activities in small groups and plenary sessions.

The participants and the resource persons were then asked to assist the WHO Action Programme in identifying future research priorities. A draft list of research priorities has already been prepared by the Action Programme through a number of consultations with ministries of health and organizations and agencies involved in the drug field. The extensive field experiences as well as knowledge of drug issues of the participants and the resource persons made the workshop a unique opportunity to discuss an agenda for research and the role of WHO, and to elicit views on the kind of national social science research needed to improve the drug situation.

On the final day participants were asked to evaluate the degree to which the workshop had achieved its objectives and the usefulness of the various sessions for their research. The overall response was very positive and it was felt that more workshops of this type would be helpful (see annex 3 for a summary of the evaluation).



## 2. DESCRIPTION OF THE RESEARCH PROJECTS

The research projects presented during the workshop fall into two categories:

Socio-cultural research projects, where the main objectives are to collect data on people's perception and use of drugs, to evaluate the impact of an educational intervention on the rational use of drugs and to develop a time-limited methodology for assessing the main cultural and contextual factors which influence people's use of drugs. The methodology to be used in the socio-cultural studies was originally intended to be qualitative and anthropological, with emphasis on in-depth studies in the field over a long period.

Socio-economic research projects which aim at gathering information on household expenditures on drugs. The main objectives are to determine the amount spent on purchasing drugs by households in urban, peri-urban and rural areas; the effect of income level and price of drugs on utilization; the type and relevancy of the purchased drugs, and the preferred type of drug outlet. The original methodology envisaged a survey of buyers leaving different types of drug outlets and a household survey.

### 2.1 Socio-cultural projects

#### Nepal

The general aim of the Nepalese study is to investigate the socio-cultural and economic aspects of self-medication, how it complements primary health care and its impact on community health. The more specific objectives are:

- (a) To gather baseline data on socio-economic, demographic and epidemiological characteristics of the selected community practising self-medication.
- (b) To evaluate knowledge, attitudes and practices of both providers and consumers in relation to:
  - types and nature of self-medication by geographic and ethnic distribution, including rural and urban;
  - methods of collection, processing, preparation and use of local medicines;
  - health conditions for which local medicines are not used;
  - belief on effects and side-effects of local medicines;
  - rituals and taboos associated with the self-medication.
- (c) To explore the opportunity for education on inappropriate and unnecessary self-medication.

The research site is a district with many different ethnic groups and urban as well as rural locations.

The Nepalese research team have chosen the following data collection methods:

- Questionnaire interview of traditional healers, drug sellers and community leaders.
- Questionnaire interview of the sampled households, group interviews including all members of the family.
- Observation of the "drug bag" used by households and the ritual process for self-care.



- Narrative description of self-care processes in all households. Intensive study of a selected number of cases undergoing self-care treatment and related problems.
- Interview of health personnel in relation to self-care patterns and problems.

The socio-cultural study in Nepal will begin field implementation in the first quarter of 1989.

#### United Republic of Tanzania

The overall aims of the Tanzanian socio-cultural study are to investigate factors influencing the consumption and use of drugs in rural communities and to develop a simple methodology which can be used to evaluate these factors.

The more specific objectives are:

- To determine sources of drugs available in the study population.
- To determine people's knowledge of instructions on prescribed drugs.
- To determine people's knowledge of the route and interval of administration.
- To find out which drugs are used for which illnesses/diseases.
- To determine people's choice of non-prescribed drugs.
- To find out if people supplement government sources of drugs.
- To determine perceived efficacy of drugs against certain illnesses/ diseases.
- To find out how drugs are stored in households.

The research site is a district in the coastal region which was chosen on the basis of easy accessibility.

The Tanzanian research team have chosen the following data collection methods:

- Pre-tested questionnaires which will be administered to both children and adults in the sampled households. In the case of children below five years of age parents or guardians will respond on their behalf.
- Pre-tested questionnaires which will be administered to a sample of households with continuous follow-up interviews over a period of one year. The sample will compare households with children and households without children and households with elderly people and households without elderly. In order to validate the data follow-up interviewing will be carried out weekly/fortnightly.
- Participant observation. The research team will participate in the village council activities whenever possible.
- Direct observations. The research team will observe people buying or receiving free drugs and check the subsequent usage of these drugs.
- Focus group discussions in order to elicit information on concepts which should be included in the questionnaires. The groups can consist of women, men, children or a combination.
- Local discussions with a cross-section of people to identify new subjects to be included in the questionnaire.



Those research methodologies which will yield broad information, will be used in the beginning of the study. Subsequently the focus will be narrowed to concentrate on specific study topics. The methodologies are therefore designed to be complementary.

The operationalization of the Tanzanian socio-cultural study started in October 1988.

### Zimbabwe

The broad objectives of the Zimbabwean study are to describe and analyse people's access to drugs and their behavioural responses to and perceptions of drugs.

A more specific objective is to develop educational/learning materials which can improve people's knowledge of drugs.

In addition to the objectives the research team identified eight hypotheses to be tested in the field:

- Folk dichotomy or etiology hypothesis. According to this hypothesis the use of modern as opposed to indigenous sources of therapy can be explained by determining whether the disorder is believed to be of natural or super-natural origin.
- Efficacy testing hypothesis. This hypothesis assumes that people tend to choose a form of therapy which, on the basis of earlier experiences or observations, they believe will be efficacious for a particular disorder.
- Shot-gun therapy hypothesis. Here it is assumed that in the case of severe illness people may try simultaneously every source of treatment at their disposal.
- Chronic versus acute illness hypothesis. The idea here is that the degree of functional impairment caused by the symptoms will dictate the nature of therapeutic resort chosen.
- Relative wealth hypothesis. The suggestion is that differences in wealth of various groups within a population can provide an explanation for differences in utilization of health services.
- Acculturation hypothesis. The claim is that differential use of alternative therapeutic resources can be accounted for by the relative acculturation of identifiable groups.
- Innovation hypothesis. The theory is that individuals who are innovators will use new behavioural alternatives before any other members of their groups.
- Access hypothesis. This hypothesis perceives people's treatment choices as results of the availability, accessibility, accommodation and affordability of treatment.

The research sites are all located in one province which was chosen by the health authorities of Zimbabwe. The field sites comprise two rural areas, two peri-urban areas, one urban area and three commercial farms.

The Zimbabwean research team have so far mainly used quantitative data collection methods. According to the research team this has had both advantages and disadvantages. The questionnaire interview method was useful for collecting data on socio-economic variations between groups on income and expenditure patterns. However, the methodology was not appropriate for assessing the validity of the study hypotheses. In addition to the structured interviews the research team therefore held several workshops and group discussions with the respondents in the field.



In the next phase semi-structured interviews and participant observation will be employed to seek explanations for the descriptive data resulting from the questionnaire survey.

The Zimbabwean baseline survey has been completed and the data analyzed. The in-depth phase has started recently. Preliminary work on the development of patient educational material has begun.

## 2.2 The socio-economic projects

### Benin

The research objectives of the Benin study include the following:

- Who buys medicines and for whom?
- How much do individuals or families in different socio-economic groups and different settings (urban, peri-urban, rural) spend on drugs in relation to their income?
- Which types of medicines are purchased? (Essential/non essential, prescribed/non prescribed, monosubstance/combination)
- Are the medicines bought relevant for the reported symptoms?
- What is the effect of the price of drugs on their utilization?
- What is the proportion of self-medication?
- Where are the medicines purchased (pharmacies, markets, etc.)?

The research sites are located in four different regions of which three have both urban and rural locations. The fourth region is purely urban. In order to be representative of the country the choice of regions was based on population density, availability of health posts and pharmaceutical outlets, potential importance of illegal distribution of pharmaceuticals and infrastructure.

The Benin research team used two data collection methods:

- Household survey - two questionnaires were administered. One questionnaire sought information on socio-economic characteristics of the households and details about drug consumption. The other questionnaire was administered to each person in the household who had been ill in the last fourteen days.
- Survey at drug outlets - a questionnaire for individuals buying drugs.

A pilot study was carried out in September 1987. This was followed by a review of the research procedures and the data collection instruments. The main field work was done in the period December 1987 to February 1988 and the data are now being analyzed.

### Kenya

The research objectives of the socio-economic study in Kenya are as follows:

- To identify the main factors that affect households' expenditure on Western drugs and traditional medicine in urban, peri-urban and rural areas in Kenya.
- To determine levels of household expenditure by main types of drugs.
- To determine retrospectively whether the drugs bought by households are essential and relevant to their health problems.



- To determine the major sources of drugs in one urban, one peri-urban and two rural areas in Kenya.
- To identify the household members who normally go to buy drugs and for whom they do this.
- To disseminate the results of the study to the public, the Ministry of Health and the international community through seminars, workshops and reports.

The research sites comprise one rural area in Western Kenya, one rural area in Eastern Kenya and two areas in urban centres.

The data collection methods applied in the Kenyan study are quantitative survey techniques which can be divided into two parts:

- Household interviews on expenditure on modern medicines with a three-week recall period.
- Drug outlet interviews in each of the sites where household surveys were conducted. Household members who come to buy drugs in modern health facilities, from licensed or unlicensed drug sellers, from drug peddlers or from traditional healers will be interviewed over a period of three months.

The first phase of the Kenyan research project has been completed. During August 1988 data were collected from households, drug buyers and traditional healers and herbalists in rural and peri-urban areas. Preliminary results have been presented.

### Senegal

The research objectives of the Senegalese socio-economic study are:

- To identify the ability of individuals and families to mobilize resources for the purchase of drugs;
- To evaluate the influence of certain socio-economic criteria on the type of drugs bought and on the purchasing modalities;
- To evaluate the influence of the health environment (supply of drugs, distance of the health services, etc.) and the economic one on the nature and modalities of the drug purchase;
- To identify the factors influencing irrational prescribing practices (characteristics of the prescriber, of the health services, etc.);
- To identify the factors which favour self-medication and evaluate the rationality of this practice.

The research sites are located in three regions of the country which were chosen because of their characteristics (average and extreme) in terms of income, geography, existence of markets, etc.

The data collection methods are quantitative survey techniques with some open-ended questions. The questionnaires are administered to three groups:

- Households.
- Prescribers (doctors, nurses, midwives, etc.).
- Individuals at drug outlets including market stalls. At this level, a different form is filled according to the type of purchase: prescription drugs, self-medication, traditional plants.



The Senegalese study started mid 1988, and is expected to be completed by July 1989. A pilot study was carried out end 1988. This was followed by a review of the questionnaires and the development of a specific questionnaire for the women in order to better understand their role in health and drug expenditures.

### Sri Lanka

The overall purpose of the Sri Lankan research project is to develop a methodology which can be used by the health authorities on a national scale to obtain information on which types of medicines people consume, where and at what cost they obtain them, the extent of drug wastage at the consumer level, and how these factors vary according to people's access to health facilities, income, educational level, etc.

More specific research objectives are to gather information on:

- Who is purchasing medicines and for whom?
- How much do individuals or families spend on medicines in relation to their income level, access to health facilities, etc.?
- Which types of modern and traditional medicines are consumed, in what quantities and at what cost (essential/non-essential, combination/single compound, prescribed/non-prescribed)?
- Are the drugs obtained relevant to the symptoms reported?
- What is the effect of the price of the drugs on their utilization?
- What is the proportion of self-medication?
- Where are the medicines purchased or freely obtained? What is the effect of geographical distance on the use of drugs?
- What percentage of the drug supplies which the patients receive from various outlets is actually consumed by them? How much is wasted? How much is consumed by those other than the relevant patients? What factors contribute to any non-utilization, under-utilization or unprescribed utilization of the relevant drugs?
- How do people's knowledge, attitudes and practices relate to their drug utilization patterns?

The three research sites are located in three different public health divisions, each with urban, semi-urban or rural characteristics. This distinction is to a high degree also based on differential availability of health services in the three areas.

The Sri Lankan research team decided that the data collection methods listed below would be the most appropriate for these particular types of data:

- Health diary. All households in the sample have been asked to maintain for one year a health diary in which all illness episodes in the household, treatments or remedies taken, health visits made, medicines obtained, expenses incurred and incomes received are entered daily by a trained household member.
- A general survey of households. A structured questionnaire is used to collect basic socio-economic and health-related information on the households in the sample.



- A survey of medicine outlets. A sample of outlets was chosen and a structured questionnaire used to determine staff, stocks, suppliers, services, etc.
- Participant observation. The investigators are requested to record observations and informal interviews with practitioners, pharmacists, patients, etc. in field note books.

The socio-economic study started in January 1988 and is expected to be completed by the end of July 1989. The health diaries have been kept in the households since May 1988. The other data collection procedures have yet to be fully implemented.

### Zimbabwe

The general objectives of the Zimbabwean socio-economic study are to determine levels of expenditure on drugs and their relationship to various factors such as geographical area, availability of and distance to all types of drug outlets, income levels, perceptions of drugs' efficacy and so forth.

The more specific research questions are the following:

- Who is purchasing drugs? For whom?
- What amounts do individuals or families spend on drugs in various areas (urban/peri-urban/rural) in relation to income levels?
- Which types of drugs are purchased (essential/non-essential, fixed dose combination/single compound drug, prescribed/non-prescribed)?
- Are the drugs bought relevant for the symptoms identified?
- What is the effect of the prices of drugs on their use?
- What is the proportion of self-medication?
- Where are drugs purchased?

The research sites are the same as in the socio-cultural study in Zimbabwe with the exception of the commercial farms which are not included in the expenditure study.

In terms of data collection methods the Zimbabwean research team have developed a separate questionnaire for a household survey on income and education. At a later stage a questionnaire directly related to expenditures on medicines will be developed. The socio-economic study in Zimbabwe is being carried out as a part of the socio-cultural study.

The household survey on income has been completed. In the next phase of the project the questionnaires on expenditure on medicines will be developed and administered to households and clients at drug outlets.



### 3. RESEARCH METHODOLOGIES

#### 3.1 Overview of methodologies used in the research projects

##### The focus

In general two types of focus have been used in the research projects, namely:

1. The providers of drugs or the users of drugs.
2. The illness or the drugs.

With regard to the first type most of the research projects focus on users which is to be expected given the objectives of the studies. Only in Nepal and Senegal are providers of drugs also interviewed. According to one of the resource persons attitudes and practices of providers may in fact be the main determinants of public drugs use.

In terms of the second type most of the studies follow an illness-centred approach. This means asking people if they have been ill during a certain period and what they have done about it. The advantages of an illness-centred approach are:

- (a) Questions will focus on what people have done to solve their illness problems. Thus responses will also include the non-pharmaceutical therapy.
- (b) The illness-centred approach allows for a smooth transition of questions from local etiology and illness perception to drug choice.
- (c) The investigator can select the most frequent illness complaints in a particular region and study people's therapies.

In the socio-cultural study in Nepal a drug-centred approach is followed. So called "drug-bags" - bags in which people store their drugs - are used as an entry point for informal discussions on the use and efficacy of these drugs.

In many of the socio-economic studies an inventory is made of the drugs available in the households. The advantage of this method is that a particular medicine can trigger a free-floating discussion. One example is Benin where it was found that the medicines kept in households were used for other indications than those for which they were initially prescribed.

##### Data collection methods

Most of the studies have used structured questionnaires as the main data gathering instrument. However, for some studies structured interviews may not be the most appropriate method. The questionnaires are in many cases fairly long and do not always reflect the objectives of the study. Questions are usually open-ended, which may give problems in note-taking if the interviewers are insufficiently trained, as well as problems in data analysis.

Some studies use unstructured interviewing to probe further on certain relevant issues. However, this technique is mainly used to complement the structured interviewing.

In Zimbabwe focus group discussions were used to feed back data collected by structured interviewing and to learn more about the user-perspective of drug use and supply.



In the research projects in Sri Lanka and Nepal notebooks are given to the interviewers so that they can write down their observations.

Extensive participant observation is never used as the main research instrument.

### Standardization of variables and validity

The socio-economic research projects apply different methods to estimate income and expenditure on drugs. In the household interviews illness-related drug use is recalled over a period varying from one week (weekly visit by health volunteer in Sri Lanka) to one month (Kenya). In health surveys a recall period of maximum two weeks is normally considered appropriate although no study has so far been done on validity of reported drug use in relation to this period. Normally however, the shorter the period, the less under-reporting. Varying recall periods in the research projects will necessarily lead to variations in reported drug use and the results from the different country studies may therefore be difficult to compare.

In general validity testing of the recall period should be done in the pilot phase of the research project.

As regards income people are often not so willing to give this type of information (fear of envy, taxation etc). A possible solution to the income problem is to relate drug expenditure to total expenditure instead of income.

## 3.2 Some methodological suggestions for research

This sector describes the following stages of the research procedure:

- Objectives
- Study design
- Sampling process
- Data collection and analysis

One of the main conclusions of the workshop was the importance of selecting methods which are appropriate to the questions outlined in the objectives. It is also important that the methods are cost-effective as well as manageable, given the number and training of research personnel.

In both these respects qualitative methods are as useful as quantitative (annex 4). The two, in fact, should go hand-in-hand. Qualitative methods can help to define the objectives more sharply - to issues that are meaningful in the local context - as well as provide data based on appropriate methods. They can also provide cost-effective data and explanations for questions that would be enormously expensive, if not impossible, to obtain through surveys.

Qualitative as well as quantitative methods and data are explained below with special emphasis on how they can be complementary.

### 3.2.1 Objectives

When defining the objectives of the study it is very important that the researcher is clear about the purpose of gathering the data. In other words the researcher should ask him/herself: "Why am I doing this research?" Answers to this question can be for the sake of a theoretical perspective or academic distinction, to facilitate policy making, to validate a political cause or claim, or to serve the community in question. All four reasons for doing research are valid depending on the perspective of the researcher but in terms of operational research, policy-making or community needs will most often constitute the rationale for the project.



Irrespective of the type of rationale, however, it is very important that the objectives of the research are simple and specific, clear and unambiguous and realistic.

### 3.2.2 Study design

The next step is to select the appropriate study design according to the objectives. Basically there are three types of study:

- (a) A descriptive study which involves the systematic collection and presentation of data to give a clear picture of the present situation. Descriptive studies can be either qualitative or quantitative.
- (b) An analytical study which tries to establish causes or risk factors for certain problems in a more rigorous way by comparing two or more groups in terms of the variables under investigation. Analytical studies can be of two types: case-control or cohort. In a case-control study the investigator compares a group of informants characterized by the problem under investigation, with another group called a control or referent group, where the problem is absent. Through this comparison the investigator tries to identify the factors which have contributed to the problem.

In a cohort study a group of individuals who are exposed to a risk factor (=study group) are compared to an unexposed group (=control group). The researcher compares the two groups over time in terms of whether and when diseases or problems appear that the investigator expects to be related to the risk factor.

- (c) An experimental study which aims at proving a causation. In an experimental study individuals are randomly allocated to at least two groups. One group is subject to an intervention or experiment while the other group is not. The outcome of the intervention is obtained by comparing the two groups.

### 3.2.3 Sampling process

It was often stressed during the workshop that the participation of a statistician from the very beginning of the planning phase saves both time and money. In fact a statistician can help the investigator select the sample which is most appropriate for the identified variables and study design. Contrary to what is often believed "bigness does not correct for bias!", in other words including a lot of people in the sample will not correct for problems in the sampling procedures. A statistician can help the researcher select the smallest possible sample.

Some definitions and stages in the sampling process are explained in annex 5.

### 3.2.4 Data collection and analysis

Although many considerations are involved in the data collection process (e.g. timing, personnel), two of the most important aspects are design of appropriate data collection methods and validation of the collected data.

#### A. Qualitative methods and data

Qualitative data are those which elucidate people's own ideas about the essential characteristics of their cultural categories. Qualitative data are concerned with meaning. The methods are designed to help us understand that other people's views of the world may be quite different from our own. Failing to recognize this can produce irrelevant questionnaires as well as erroneous



interpretation of quantitative results. Thus, the aim is to find methods that will allow the researcher to explain people's behaviour in ways that are rational, given their own cultural logic. It is not only necessary for the researcher to be sensitive to this perspective but also to sensitize the research assistants.

- 1. Participant observation - when the researcher participates in community activities. Asking questions all along is most helpful, e.g. "what is that?", "What is it used for?", "Why is x used instead of y?", "Why did he do that?" This allows the researcher to understand, and therefore explain, local behaviour much better than if the information is learned second-hand.
- 2. Maps - drawing maps of the geographical region, showing features such as mountains and rivers, can help explain people's behaviour, such as why people rarely attend clinics that may sound quite accessible by distance alone. Similarly a sketched map of a town showing the street route of travelling pill peddler can illustrate forcefully how accessible this source of pharmaceuticals can be.
- 3. Documents - examining work already done and recorded about the area can save considerable time as well as give the researcher ideas about relevant topics to pursue in more depth. These documents can include descriptions of symptoms and treatments found in clinic records, personal diaries, and sometimes anthropological or sociological descriptions in books, journals or reports. Researchers can also use general ethnographic descriptions that are already recorded to develop ideas about cultural beliefs which may play a part in illness beliefs and treatment strategies.

If clinic records are used the researchers should not automatically assume that the local health professionals' perceptions of drug use and efficacy are rational from a medical-pharmacological point of view. In the Philippines one of the resource persons found that in some cases users and doctors had similar misconceptions about drug efficacy.

- 4. Interviews - there are different kinds of interviews, ranging from completely structured (e.g. pre-coded questionnaires) to more open-ended interviews. Design of structured questionnaires for survey use will be discussed in the section on quantitative methods. Some of the more qualitative types of interviews are described below:
  - (a) Ethnosemantic interviews - these are interviews which ask informants to explain their own categories and how they are organized. For example "List all the kind of healers you can think of", "Are there others?", "Which of these are most similar to each other?", "What would you call that group together?" The result can look something like this:

	Modern	doctors nurses dispensers
Healers	Traditional	bone setters diviners witch drivers medicine person
	Islamic	Mori man



Using such a scheme, the researcher can then probe in more depth about what distinguishes each from the other in terms of skills, advantages versus disadvantages, rapport etc. Informants can also be asked to sort things, such as an array of pills or cards with disease terms written on them, into relevant cultural categories.

- (b) Open-ended individual interviews - these are conducted with one individual at a time. Ideally this is done with a key informant or analytical informant: someone who is both in a key position to know about the topic of interest as well as having a lively intelligence and analytical insight (regardless of formal education). The interviews usually cover general topics but the investigator should allow considerable flexibility to probe into topics that emerge as important.
  - (c) Group interviews - normally open-ended. The group should consist of several individuals who may get ideas from each other or provide useful contradictions which the investigator can explore. Groups of more than four or five are usually too unyieldy.
- 5. Case studies - these can emerge from many sources such as interviews or participant observation. They can illustrate trends as well as provide further information on the conditions under which people behave in certain ways. They can also provide evidence that seems to contradict the researcher's explanations. Resolving such apparent contradictions can lead to a more accurate understanding.
  - 6. Taping natural discourse - this is a rarely used but enormously rich source of data. The researcher asks permission to tape record an event in which people speak naturally, for instance about a disease event or a therapy seeking event. Such conversations can yield categories and beliefs that informants might forget to mention in a formal interview or consider irrelevant. After taping the event the researcher gets it transcribed and then goes over the important words and concepts with informants - even the participants in the event themselves.
  - 7. Life histories - these are rich sources of information that can help particularly to understand what influenced people to adopt certain behaviours or professions. The life history of a travelling pill peddler may yield a picture of unexpected experience and training. Alternatively the "life history" of an antibiotic capsule might be illuminating in showing what channels and social networks medications actually traverse before being consumed.
  - 8. Simulations and plays - people greatly enjoy being asked to stage a mock situation of an event of interest to the researcher. A simulated visit to the doctor or pharmacy can encourage people to highlight difficulties they face. The researcher can interrupt occasionally for explanations or wait till the end to probe. The actors can also be asked to break the rules, e.g. asking a "patient" to contradict a formidable "doctor". The results can reveal highly salient features of the social relationships which can help explain behaviour.

## B. Quantitative methods and data

Quantitative studies aim at quantifying the distribution of certain variables among a study population. This type of study usually concentrates on a limited number of variables that are quantified (measured) in a relatively large population.



## Design of questionnaires

Identifying the data variables and then writing appropriate and carefully formulated questions are essential for the design of questionnaires which will yield accurate data. The format and wording of the questions should be determined with priority being given to the purpose and the objectives of the survey. Among the important things to remember when designing a questionnaire are:

- The researcher should use table outlines (dummy tables) right from the starting phase of the research in order to plan how the information collected from each question will be used in the final report.
- The researcher should be aware that lengthy questionnaires with too many items may cause loss of interest by the respondent, create confusion or even prevent the completion of the questionnaire.
- Before using an open-ended question the researcher should make sure that there will be sufficient time to analyze the data. If possible questions should be pre-coded. If this is not possible preparations should be made for subsequent coding or transcription.
- When phrasing the questions the researcher should be aware of language differences and vocabulary limitations of the respondents.

(Additional check list points for the design of questionnaires are given in annex 6).

However the most essential of all activities is to pre-test the questionnaire very carefully.

### C. Validity of data

Frequent supervision is of course absolute essential to ensure the quality of the data. However, various other methods can be employed to ensure the validity of the data. Some of these are:

- A complete re-interview as a check on the consistency of reporting. One of the resource persons informed the workshop that in a specific longitudinal study reported incidence of specific illness episodes was four times higher in the first week than in all of the following weeks. This suggested widespread overreporting during the first interview. The reasons for this overreporting were related to the unclear time-period in the first interviews - even if the respondent is asked to report on illnesses in the past week, he or she may report over a longer period. In later interviews it is easier because the interviewer can refer to the period since the last visit. Another reason may be that people during the first interview expect to receive free drugs, hence the overreporting of illness periods.

Disadvantages of the re-interview validation method are that it is hard to motivate respondents to give a second interview and there may be interferences from one interview to the other.

- Observations of interviewers. In a research project in the Philippines interviewers systematically observed the incidence of coughs and colds in the households and used these observations to estimate under- and overreporting by respondents.



- Clinical confirmation. Interviewers can also check on the incidence of illnesses by using diagnostic instruments and by checking health records at relevant health care facilities.
- Probability of occurrence. The researcher can check the reported illness cases with the probability of occurrence in different age groups and population strata.

Most of the above validation methods are especially useful for checking on the reporting of illness periods. Re-interviewing and checking health records can however also be used to validate reported drug use.

Specifically in terms of increasing the validity of illness recalls the following advice can be given:

- Use local illness terms
- Use tracer-conditions (check for certain illnesses)
- Limit proxy-reporting
- Limit the recall period

#### D. Data analysis

Most of the research projects presented in the workshop are exploratory in nature and therefore have broad objectives. This results in the collection of much data which could be difficult to analyze. The solution to this problem is a process-orientation in the research. In the preliminary phase of the project a broad perspective and qualitative research methods are appropriate. Analysis of data collected in this phase can contribute to redefinition of objectives and an appropriate questionnaire design. Certain central themes can be studied in depth through qualitative methods which will complement the data collected by questionnaire. Thus, by continuous analysis of results during the study, the focus is narrowed. Such a process will also ensure that data become available as early as possible.

The interpretation of results depends on whether it is quantitative or qualitative data. Quantitative data collected by structured questionnaire may be hard to interpret as the researcher has relatively little information on why certain trends occur. Sometimes it is helpful to ask the respondents to comment on the findings in group discussions, thereby guiding the researcher in the interpretation of the findings.

The problem with qualitative data gathering is that this type of data requires a high degree of interpretation by the researcher. The principal researcher, who is ultimately responsible for report writing, will need to be "close" to the field situation to be able to analyze the data appropriately. This makes frequent interaction between field workers and the principal researcher a necessity.

#### 3.3 Relationship between qualitative and quantitative data: a summary

Many methodology textbooks argue that qualitative methods are most effectively used at the outset of a project, to get a cultural lie of the land, then put to the side in favour of "real" (i.e. quantitative) data. In fact qualitative data can be used at all phases of the project - the outset, for designing questionnaires, revising questionnaires, and in analyzing quantitative data. Analysis therefore should be a continuous process at all phases of the project which utilizes an interplay between qualitative and quantitative methods to simultaneously provide answers as well as stimulate new questions. How, then can qualitative data be used in conjunction with quantitative methods and throughout the analysis?



1. Exploratory - Qualitative data can be crucial in determining the research focus for a questionnaire.
2. Using culturally appropriate variables - Qualitative methods can save considerable effort that may be wasted later if the wrong questions (or irrelevant) questions are asked. They can also help problems of meaning in surveys. Questionnaires are often written in the national lingua franca, but how they are translated and understood can vary widely. Researchers should spend considerable time before constructing the final survey form in going through important concepts to ensure that the exact meaning will be understood.

Example: In West Africa the term "weaning" can refer to removing the child from the breast. But because male sexual fluids are believed to contaminate a woman's breast milk, "weaning" is used more frequently as a euphemism for resuming sexual relations after several months of post partum abstinence. It is therefore important to question informants closely before constructing the questionnaire to ensure that they understand the meaning of a term used by the interviewer.

3. Simplifying questionnaires - Using qualitative information obtained previously, researchers can construct surveys that will save time and cost. They can determine which choices will be the most likely responses and therefore can be used to limit the number of pre-coded choices. (Obviously if the "other" category proves too large during pretesting, the choices can be expanded).
4. Illustrating results - Qualitative data are used quite effectively in illustrating patterns that the quantitative results reveal. Often, in fact, examples are remembered much longer than statistic figures. Qualitative examples can also illustrate cases that appear to contradict the grand patterns, and these contradictions can be used to probe for why the apparent exception may actually prove the rule.
5. Generating quantitative questions - information gained from open ended interviews or case studies can be used to generate questions for inclusion in surveys. In fact, if surveys do not reflect issues and categories that are important locally, then they are virtually useless in explaining behaviour.

Example: A researcher may learn through interviews or chance events in the community that colour is important in people's decisions concerning medication for a particular illness. Therefore questions might be included on a survey to this effect. After asking what the person's illness or symptoms were, the researcher might ask the name of the medication as well as what colour it was. Thus, if the sufferer believed that a lack of blood was a major problem, he might say he chose red pills.

6. Quality checking - ("triangulating"). Qualitative data can be used to cross check a quantitative result. If there is a discrepancy between the two sets of findings, it is always possible that the key informants from whom a certain qualitative interpretation was obtained can be poor representations of the population. But often qualitative information gained even through a chance comment can be a more insightful source of information than imposing numbers and correlations. Information, therefore, should be obtained through a number of sources to ensure that the interpretations are consistent with all the facts.
7. Generating creative causal or correlational questions - Ideas obtained through conversations or observations can be used to test quantitative relationships that the researcher may not have considered previously. These techniques can yield important clues about the conditions under which people behave in one way or another.



Example: The researcher may notice that whereas a doctor performs deliveries in the local hospital, he sends his wife to the traditional midwife to deliver. Or a traditional healer may be observed one day in the waiting room at the clinic. Hence, although we usually assume that the two types of healers do not seek treatment from each other, they may do so in ways that reflect the willingness of people to be quite flexible in their behaviour. Or they may do so under conditions of extreme desperation.

8. Interpreting quantitative results - One technique that is badly under-utilized is to obtain interpretations of quantitative results from local informants themselves, instead of assuming that the researcher can easily assess the correct interpretation. Results in hand, the researcher can go back to key informants and ask them for ideas on why the outcome was one way and not another. This is especially useful when the results are puzzling or unexpected. But it is also useful to try even if the interpretation appears obvious.

Example: A survey may show that the local women patronize traditional birth attendants much more than a clinic or hospital, even though the distance to the hospital is the same as to the midwife. However, distance may have little to do with these decisions. What may be more important in people's minds is that hospital delivery beds are far above the ground, by contrast to the reassuring squatting position on the ground that a delivering mother assumes in the midwife's house. A researcher would have little other means of understanding this without asking informants.

9. Plugging the holes - Researchers frequently finish their surveys and are almost out of time and funds when they discover a serious omission in the information they have collected. Some other crucial aspect has emerged at the last minute that is impossible to investigate with a survey. Qualitative methods, particularly of interviewing key informants, can help the researcher obtain this information, although the sources should be explained in the report.

### Conclusion

There is not only one correct way to investigate a research problem. Researchers should try to obtain as much information as they can, in whatever ways they can think of. As long as the methods and sources of the data are clearly explained, and the relative merits of these methods and sources stated, readers can evaluate the information on its own merits. It is important to be confident to pursue valuable tangents and to devise creative methods to suit the problem as it emerges during the research.



#### 4. UTILIZATION AND ACTIVE DISSEMINATION OF RESEARCH RESULTS

The reason for carrying out research is to obtain information and data that can be used to improve a given situation, in this case health and drug use. In general, there is a lack of cooperation and understanding between researchers and those who could use the results of their studies. The latter, particularly decision-makers, do often not see research as contributing to the general goal of the ministries of health, i.e. improving health care. It appears to be a luxury rather than a useful tool to implement change. Since research is frequently not supported by sufficient funding and expertise nor integrated into the decision structure of the ministries of health, its results are often of questionable value, thereby, reinforcing the sceptical attitudes of decision makers.

In order not to repeat these past failures, the workshop was seen as a good opportunity to explore approaches that would facilitate increased utilization of research findings and how WHO can help in this respect.

Participants worked in small groups on what should be done in the various phases of the research to ensure the dissemination and utilization of results. Each group presented its proposals in a plenary session (see annex 7).

As a general comment, it was stressed by all the participants that planning for the utilization and dissemination of the results should take place at each step: while designing the research, during implementation of the project and on completion.

##### 4.1 While designing the research

All the projects developed a dialogue with health authorities, practitioners and community leaders at the design phase of the research and tried through consultation with the various target groups to assess if the topic selected was a priority problem.

Some of the projects, mainly those in Asia, involved potential users and ministry of health representatives in the design of the research and in the research team.

In Benin, individuals, NGO's, bilateral projects, international organizations such as UNICEF and the World Bank, and consumer groups that could be interested in the results were identified at this early stage and supplied with information during the implementation of the research.

However, none of the projects developed initially a strategy and tentative plan for disseminating the results to the various audiences. It should be noted that WHO did not stress this need in its initial proposals.

##### 4.2 During implementation

In the implementation phase discussions were held with the people concerned in all projects: supervisors, the administration, the population studied, the funding agency. Benin supplied its target groups with short simple reports and organized conferences with the private sector (pharmacists, wholesalers, etc.) and Zimbabwe set up an advisory committee. Such advisory committees are very useful and ideally should include technical staff, policy makers and users of the results. However, such a composition of people is sometimes difficult to manage and needs a good facilitator; it is important to define carefully at the beginning what should be the role of the committee: technical, policy oriented or combined.

It was also proposed that information be given regularly to the mass media. One participant cautioned that in some countries, at certain moments, the mass media had no credibility in the population. The main conclusion was the need for the research team to be opportunistic and to carefully select the right moment to diffuse popular articles and results to the various audiences. "If the research is not "topical", calling big meetings and using the mass media will not help".



Community meetings, workshops, newsletters or circulars were not used by the projects, although it was agreed by the principal investigators that these could be very useful means to maintain the interest of everyone concerned. The reasons for not using them were twofold: lack of time to organize and prepare these activities, and lack of funds; the Kenya proposal was the only one to include a plan and a budget for dissemination of results.

#### 4.3 Final phase

None of the projects have reached the final phase and the teams have therefore not yet thought in detail about how to disseminate the results and promote the recommendations. During the workshop the participants presented their tentative plans for ensuring the utilization of the research results. A variety of methods were discussed; reports targeted to the various audiences and workshops or seminars at community, national and international level were favoured. Popular drama and literature were envisaged by Nepal and Sri Lanka. Submission of articles to regional and international professional journals, and for lay people to the local newspaper were proposed by Benin and Senegal. Conferences, round tables and discussion groups using local languages were also listed as useful tools for dissemination (annex 7).

In order to make dissemination more efficient it should not take place too long after completion of the research and be linked to action; internal seminars in the Ministry of Health to discuss necessary interventions are often useful. The question of how to empower the community through the research was also raised. Possibilities included to review the tentative findings with those studied; to distribute the report or a simplified version, to organize meetings and discussion groups, where it can be explained how the results can be put into action at community level.

The need for clear, simple, practical, attractive reports including recommendations for action and ways on how to use the results was stressed by all participants. When writing reports for communities it is important to remember that local illness terms often do not concur with biomedical disease terms.

#### 4.4 The role of WHO

WHO was seen as an important vehicle for the better dissemination and utilization of research results. Participants agreed that WHO should contribute at national level to the dissemination of results to the national authorities and the agencies of the UN system. It should try to get the ministry of health committed to research and to encourage the utilization of the results at a national, regional and international level. This could be done by organizing seminars, publishing the results in the WHO international journals (annex 8), and mobilizing funds to carry out all the activities linked to dissemination. Eventually the results of all the research projects should be synthesized in a book or in a publication.



## 5. FUTURE RESEARCH PRIORITIES IN THE DRUG FIELD

### 5.1 Identification of research priorities

The last session was devoted to the broader issue of needed research in the field of essential drugs and drug policies. Despite the tremendous progress seen in recent years and the great number of countries which have established essential drug programmes, WHO estimates that there are approximately 2 billion people throughout the world who do not have regular access to essential drugs. The reasons for this situation are complex. Some of the main problems which prevent the increased coverage and the rational use of drugs are: lack of financial resources particularly foreign exchange, lack of national commitment and management capacity - the few resources available not being allocated according to health priorities; irrational prescribing practices, dangerous self-medication; non-compliance by patients; and misuse of modern and traditional medicines.

For the world situation to improve, solutions have to be found to these problems and more research should be carried out. It is against this background that the WHO Action Programme increased its operational research activities. A strategy has been developed and a priority research areas and topics have been identified through WHO consultations at the local, regional and global levels and with other institutions and organizations in developing and developed countries (ministries of health, UNICEF, World Bank, and non-governmental organizations such as The Christian Medical Commission and Médecins sans Frontières) (annex 9). These research priorities were presented in detail during the session. However the discussion focussed, not only on future WHO activities but on the more general issue of the kind of research still needed - with or without WHO collaboration - to make essential drugs available to all and to promote a healthy use of medicines.

The participants worked in small groups, by region, and developed a list of research topics seen by them as priorities in their own country or region (table 1). This list was then compared with the WHO list, the latter being endorsed by the workshop. The two lists will be consolidated and will help WHO to develop its research strategy and assess the relevance of future research proposals.

### 5.2 Strategies for promoting research

Strategies for promoting and supporting research were seen by the participants as an international responsibility. Not only should ministries of health be sensitized to the subject but WHO and other international organizations should play an active role.

Building the capacity for conducting research at the national level calls for sufficient capabilities and the development of adequate research facilities. Training and networking are the main tools to increase capabilities. Training could be done through regional or interregional workshops, with the objective to teach or reinforce skills that are widely applicable to research in certain fields, e.g. social science research techniques. Networking on drug related issues among researchers or research institutions in developed and developing countries was however considered the most appropriate way. This could extend the resources currently available for supporting educational and operational activities at country level; assist develop a pool of consultants with expertise in the design and management of resources; and finally help mobilize financial resources for support of individual activities at country level.

37-412/89



Table 1

Priority areas for research as developed by the participants

Policy issues

- AS\* 1 Impact of changes in drug policies over time on accessibility, cost and use of drugs.
- 2 Impact of drug policies on childhood morbidity and mortality in rural areas where before the drug policy, drugs were relatively inaccessible.
- EA 3 Integration of specialized programmes: impact in terms of range and facility of drugs.
- WA 4 Analysis of reciprocal influences between essential drug policy and private sector.
- 5 Role of traditional medicine in essential drugs policy.

Economics

- AS 1 Effect of cost of antibiotics on antibiotic utilization patterns.
- 2 Comparison of prices of locally manufactured drugs and imported drugs in terms of costs to the consumer and foreign exchange. Assessment of policy implications.
- EA 3 Cost-effectiveness of disease control programmes.
- 4 Ways to finance the drug supply (cost-recovery, etc.).
- WA 5 Impact of financing mechanisms on the drug supply system.

Drug supply and technology transfer

- AS 1 Study of the quality of drugs during transport.
- 2 Analysis of the role of the informal sector in drug distribution focussing on the periphery and drug policy implications.
- EA 3 Analysis of various procurement strategies and distribution systems.
- WA 4 Bio-availability and essential drugs policy.

---

\* AS - Asia (participants from Nepal and Sri Lanka)  
EA - East Africa (participants from Zimbabwe, Kenya, Tanzania)  
WA - West Africa (participants from Benin, Senegal)



Drug use

- AS 1 Extent to which drugs are wasted at various levels of health care.
- 2 Interaction/communication between prescriber/dispenser and patients.
- 3 Use and perception of problem drugs along the distribution channel, e.g. antimalarial, vitamins, antibiotics.
- EA 4 Analysis of prescription practices.
- 5 Impact of "open practice" of traditional healers (legislation) on quality of care.
- WA 6 Ways to introduce changes in the behaviour of prescribers.
- 7 Determinants of non-compliance.
- 8 Study on the risks of keeping drugs in households.



According to the investigators, the WHO Action Programme on Essential Drugs and Vaccines should play an active role specifically in the following functions:

- to help in identifying priority areas for research relevant to country needs;
- to assist in identifying appropriate research institutions within the country;
- to facilitate and coordinate action between the researchers and various organizations which can support research (NGO's, bilateral organizations, etc.);
- to develop research networks at global and regional levels;
- to collect and disseminate information on planned, ongoing and completed research projects;
- to assist, plan and organize training activities for research workers;
- to create opportunities for periodic exchange of research experiences (workshops, etc.);
- to support the establishment of documentation centres (regional and international) and the development of a bibliography of research related publications;
- to sensitize ministries of health to the importance of research and draw their attention to ongoing research in the country;
- to help locating funds for follow-up research.

The Action Programme should also promote and publicize the research activities of the programme. To this effect, the brochure "A call for operational research", still in draft form should be finalized quickly and widely distributed to WHO country representatives, ministries of health, universities, etc. Programme activities in the research field as well as other relevant research should be widely publicized through meetings, articles, etc.

The workshop agreed that the research agenda should be sent to all potential donors in order to sensitize them to the importance of research and to the need to fund it, through WHO or directly at country level. The participants also discussed the role that international donors should play in the promotion and support of relevant research. Suggestions included the following:

- Better coordination among themselves in order to support research projects at national level.
- Creation of national funds for research.
- Creation or strengthening of research institutions.
- Support for documentation.
- Identification of research areas when developing essential drug programmes or health development projects and integration of research in the plans of operation, etc.



## 6. CONCLUDING REMARKS

The workshop has been a success as it has allowed principal investigators to share their experiences and problems in the implementation of the research, to gain new knowledge in research methodologies and analyze the implications of introducing the methodological suggestions in their project.

It was agreed that, for optimum efficacy, such workshops in the future should be scheduled at three moments of the research process:

- before the finalization of the protocols in order for the investigators, assisted by facilitators, to select the most appropriate methods and sampling procedures and to develop an approach which will facilitate the comparability of results;
- in the middle of the field implementation to discuss and solve common methodological problems;
- at the end of the research before the official publication of the results to analyze a posteriori what went well and not and organize the dissemination of the final results.

This kind of workshops was felt by all participants, investigators and facilitators, to be a cost-effective way to strengthen research capabilities and foster further research. But for research to develop and help reach the objectives of ministries of health the results should be used by policy makers; to achieve that, the research should be relevant to the priorities and concerns of policy makers and a strategy should be worked out from the outset to promote and disseminate the results at national level. According to the investigators, a workshop including concerned policy makers at the stage of writing of the protocol would have been particularly useful in all projects. Such a workshop would have permitted a greater participation of the WHO Office and organizations active in the health and the drug field at country level (bilateral agencies, etc.).

WHO has an important role to play at two levels:

- sensitize ministries of health on the importance of research in general to solve long standing problems; this is not only the duty of the Action Programme on Essential Drugs but it is part of the overall WHO strategy to strengthen health research system;
- provide technical and financial support to research in the drug field and coordinate at global level the initiatives relating to the extension of the coverage of essential drugs and the rational use of drugs; this is the specific role of the WHO Action Programme on Essential Drugs.







ANNEX 1

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

AGENDA

Monday, 26 September 1988

1. Review of social science research projects financed by DAP
  - (a) DAP's social science research component: objectives and constraints.
  - (b) Presentation of each research project and preliminary results.
  - (c) Discussion on common characteristics/constraints and suggestions for solutions.

Tuesday, 27 September 1988

2. Strengthening of capabilities in research methodologies
  - (a) Quantitative methods:
    - Questionnaire design
    - Sampling
    - Coding
    - Validity testing
    - Data analysis.
  - (b) Qualitative methods:
    - Participant observation
    - Focus group discussions
    - In-depth interviewing
    - Innovative approaches.
  - (c) Comparability of research results.
  - (d) Summary.



Annex 1

Wednesday, 28 September 1988

Excursion (morning)

3. Impact and use of research results

- (a) Identification of target groups.
- (b) Dissemination of research results (books, journals, seminars, etc.).
- (c) Plan of action.

Thursday, 29 September 1988

3. (Continued) (morning)

4. Future research priorities (afternoon)

- (a) Identification of research gaps.
- (b) Discussion on future research priorities.
- (c) Suggestions for future research strategies and the role of WHO.

Friday, 30 September 1988

5. Concluding remarks

ANNEX 2

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

LIST OF PARTICIPANTS

Principal investigators

Mr Idrissa Diop  
Direction de la Recherche  
Ministère de la Santé  
Av. Cheikh Anta Diop  
Dakar  
Senegal

Dr Ebrahim Jassat  
Zimbabwean Institute of Development  
Studies (ZIDS)  
P.O. Box 880  
Harare  
Zimbabwe

Dr Kumud K. Kafle  
Institute of Medicine  
Teaching Hospital  
Kathmandu  
Nepal

Dr George Lwihula  
Department of Behavioural Sciences  
Muhimbili Medical Centre  
P.O. Box 65000  
Dar es-Salaam  
United Republic of Tanzania

Dr P. Makau/Dr Germano Mwabu  
Kenyatta University  
Business Education Department  
P.O. Box 43844  
Nairobi  
Kenya



Annex 2

Dr Norman Nyazema  
Chairman  
Department of Clinical Pharmacology  
Godfrey Huggins Medical School  
University of Zimbabwe  
P.O. Box A. 178  
Avondale  
Harare  
Zimbabwe

Dr Tudor Silva  
Chairman  
Department of Sociology  
University of Peradeniya  
Peradeniya  
Sri Lanka

Professeur Th. Sogodjé  
Département de Pharmacologie  
Faculté des Sciences de la Santé  
Université nationale du Bénin  
B.P. 188  
Cotonou  
Benin

Resource persons

Dr Sam Adjei  
Ministry of Health  
P.O. Box M. 44  
Accra  
Ghana

Mr O.O. Ajayi  
Director  
Federal Office of Statistics  
Federal Secretariat Complex  
Phase II  
P.M.B. 12528  
Lagos  
Nigeria

Dr Caroline Bledsoe  
Department of Anthropology  
Northwestern University  
Evanston, IL 60208  
United States of America

Dr Anita Hardon  
Anthropological Sociological Centre  
Cultural Anthropology Department  
Oude Zyds Achterburg wal 185  
1012 Dk-Amsterdam  
The Netherlands

Annex 2

Observer

Mr D.T. Chavunduka  
Department of Clinical Pharmacology  
Godfrey Huggins Medical School  
University of Zimbabwe  
P.O. Box A. 178  
Avondale  
Harare  
Zimbabwe

WHO Action Programme on Essential Drugs

Mrs Pascale Brudon-Jakobowicz  
Scientist

Ms Anne V. Reeler  
Research Assistant

DR-112-271



ANNEX 3

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

SUMMARY OF EVALUATION

Evaluation

The objectives of the workshop were:

1. To review the social science research projects financed by DAP.
2. To strengthen capabilities in research methodologies.
3. To ensure the impact and use of the research results.
4. To identify research priorities for the future.

An additional non-explicit objective was to establish links between researchers from different countries engaged in drug related research.

In the following please assess the extent to which the workshop has achieved the objectives. We suggest you use a grading system from 1 to 4 with:

- 1 - below expectations/not very useful
- 2 - fairly interesting but not of immediate use in my research
- 3 - relevant and useful for my research
- 4 - highly relevant and useful for my research.

The average grades were:

- A. The appropriateness of the aims and objectives of the workshop

3.6

- B. The exchange of information about related research projects in other countries

3.6

- C. The receipt of helpful advice was given on how to improve the methodology of your research project

3.3

- D. The obtainment of knowledge on new research methodologies or combinations of these

3.4

- E. The planning of dissemination and utilization of results

3.4

Annex 3

F. The fostering of new ideas on research areas and topics

3.2

G. The establishment of useful contacts with other researchers engaged in drug related research

3.7

H. The structure of the workshop in terms of relevance of agenda items, working methods and time allocated to each subject

3.3

I. The composition and number of participants

3.1

J. The excursion on Wednesday morning

3

We would be very grateful for comments and suggestions for improvement of future workshops.

Thank you for participating.

Ms Anne V. Reeler

Mrs Pascale Brudon-Jakobowicz



ANNEX 4

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

SCHEMATIC OVERVIEW OF METHODS FOR FIELD RESEARCH ON DRUGS USE

(Methods and focus used by presented research projects)

METHODS	GENERAL COMMENTS	PROVIDERS	FOCUS OF RESEARCH USERS	ILLNESS	DRUGS
INTERVIEWING	structured <ul style="list-style-type: none"><li>+ easily quantified;</li><li>+ comparable with other data;</li><li>- oversimplification;</li><li>- low validity.</li></ul>	Few	Majority	Some (Inventory)	
	unstructured <ul style="list-style-type: none"><li>+ more "natural";</li><li>+ opportunity to probe deeper;</li><li>+ high validity, information can be checked;</li><li>- respondent's opinion may be influenced;</li><li>- harder to compare.</li></ul>	Few (Nepal)	Some (mainly probing)		Few (Nepal) "drug bag"
	group discussion <ul style="list-style-type: none"><li>+ generate ideas;</li><li>+ action-oriented;</li><li>- less depth analysis;</li><li>- social pressures may inhibit some respondents.</li></ul>		Few (Zimbabwe)		
OBSERVATION	open <ul style="list-style-type: none"><li>+ more reliable than oral communication;</li><li>+ natural context;</li><li>- respondent may object to presence of an onlooker;</li><li>- harvest of information may be slim.</li></ul>		Few (note-books)		
	unobtrusive <ul style="list-style-type: none"><li>+ most natural picture;</li><li>- no interviewing possible, as that may give away identity;</li><li>- usually only limited observations possible.</li></ul>				
DOCUMENTS	records <ul style="list-style-type: none"><li>+ cost-effective;</li><li>- limited understanding;</li></ul> reports various docs				
OTHERS					

+ = advantage  
- = disadvantage

ANNEX 5

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

DEFINITIONS AND STAGES IN THE SAMPLING PROCESS

(a) Target population

The target population is the population to which inferences or conclusions from the study would be applied. An example would be all adult purchasers of drugs in a given country, e.g. Kenya.

(b) Study population

The study population and its characteristics have to be clearly defined. Because of financial and time constraints a restriction on the geographical scope of the study will often be added, i.e. selected study areas. In the case of the expenditure on drugs study the study population could, for instance, be defined as all adult purchasers of drugs in Nairobi.

(c) The sample

A representative sample should possess all the important characteristics of the population from which it is drawn. There are two main categories of sampling procedures, NON-PROBABILITY SAMPLING and PROBABILITY SAMPLING.

NON-PROBABILITY SAMPLING. This type of sampling procedures is particularly useful for pilot studies on attitudes or opinions where the aim is to get only a rough impression of how certain variables are distributed in the population. Examples of these are:

- Convenience sampling. With this method the "sample" that happens to be available at the time or period of the research is selected, for convenience sake. An example could be all patients attending a particular clinic on a certain day. The drawback of this method is of course that the sample may not be representative of the study population.
- Quota sampling. Through use of this method the investigator tries to ensure that all the known elements of a population occur in the sample, maybe in the same proportions as in the population. This means that the researcher interviews as many people in each category as possible until the "quota" has been filled. If ethnicity is felt by the researcher to be an important variable determining people's attitudes to medicines, quotas of clients of different ethnic background will be selected for interviewing in the same proportions as they are found in the population.



## Annex 5

PROBABILITY SAMPLING. These sampling methods employ random procedures to ensure that the sampling units (e.g. individuals, groups of people, objects, villagers) are selected on the basis of chance. The sample units must have a known non-zero probability of being included in the sample. This requires that a complete listing of all sampling units is available. Such a listing is called the sampling frame.

- Simple random sampling. This is the simplest form of probability sampling. In this type of sampling each unit in the population list (=sampling frame) has an equal chance of being selected for the sample. To select a simple random sample the first step is to make a numbered list of the units in the population that the researcher wants to sample. The next step is to decide on the size of the sample (see paragraph on sample size below). Having done this the researcher selects the required number of sampling units using a "lottery" method or a table of random numbers. With a table of random numbers each sampling unit is assigned a number and from a table of random numbers x numbers are selected. All sampling units with these numbers constitute the sample.
- Stratified sampling. The simple random sampling does not ensure that the proportions of individuals with certain characteristics in the sample will be the same as those in the target population. If it is important that the sample includes representative sub-groups of individuals (for example urban and rural residents, age groups, etc), then the sampling frame must be divided into sub-groups or strata for these characteristics. Random or systematic (see later) samples of a pre-determined size will then have to be obtained from each stratum. Stratified sampling is only possible when it is known what proportion of the study population belongs to each stratum.

The advantage of this type of sampling is that the researcher can take a relatively larger sample from smaller sub-groups. This allows for a sample which is big enough to enable valid conclusions about relatively small sub-groups without having to collect an unnecessarily big (=expensive) sample of the other larger groups. However, it is important to correct for the unequal sampling fractions when making estimates for the whole population.

- Cluster sampling. Sometimes it is difficult or impossible to take a simple random sample of the individuals in the target population, either because a sampling frame of individuals does not exist or because visiting scattered individuals is logistically difficult. However, when a list of groupings of individuals - clusters - is available, then a random sample of clusters can be selected. All the individuals in the clusters are included in the sample. This cluster sampling method can be used by making a list of all villages in a region and choosing a random sample of villages from this list. The sample can consist, for example, of all adults in the selected villages.
- Multi-stage sampling. After selection of a sample of clusters, further sampling of individuals may be carried out within each cluster. In that case the method is called two-stage sampling or multi-stage sampling. A first stage sampling could for instance be cluster sampling of districts and the next stage sampling of villages within the selected districts.

### Annex 5

The main advantages of cluster and multi-stage sampling are that a sampling frame of individual units is not required for the whole population. Initially a sampling frame of clusters is sufficient. Only within the selected clusters do the individuals need to be enumerated. Furthermore, logistically the study will be easier to carry out than a simple random sample of similar size. However there is a larger probability that the final sample is not representative for the total study population. The likelihood of it being unrepresentative mainly depends on the number of clusters selected in the first stage. Ideally this number should be twenty or more.

- Systematic sampling. Sometimes the most convenient way of obtaining the sample is by choosing the sampling units directly from the sampling frame, e.g. taking every tenth person who visits a pharmacy to fill in a prescription. Ideally a random number is used to decide where to start. If for example a systematic sample is to be selected from 1000 filled prescriptions in a pharmacy, and the sample size has been chosen to be 100, the sampling fraction would be:

$$\frac{100 \text{ (= sample size)}}{1000 \text{ (= study population)}} = \frac{1}{10}$$

The sampling interval is therefore 10, in other words every tenth prescription will be included in the sample until 100 sample units have been obtained. It is important that the first prescription is picked randomly. The researcher should be cautious that the sampling interval does not coincide with a systematic variation within the study population.

- Sample size. The eventual sample size is usually a compromise between what is desirable and what is feasible. It is helpful to distinguish sampling procedures in qualitative studies from those used in quantitative studies.

In a qualitative attitude study the sample size would need to be large enough to reflect important variations in the population but small enough to allow for intensive study methods. Once the categories of informants have been defined the researcher can start with twenty to thirty interviews per category. This number can be increased if the information obtained per category does not provide a certain trend or yields conflicting information.

When conducting a study on quantitative variables it is strongly recommended to consult a person who is able to calculate the required sample size. These calculations often require estimates of the occurrence of important variables. In addition the main aims of the study have to be made explicit, i.e. is the aim to measure a variable with a certain precision or is to show a significant difference between two sub-groups in the study population. It may be useful to conduct sample size calculations for each of the objectives of the study. These calculations may reveal that some, but not all, study objectives are feasible. Alternatively they may show that some variables only need to be measured on a sub-sample.



ANNEX 6

Social Science Research Workshop

26-30 September 1988

Nairobi, Kenya

CHECKLIST FOR THE DESIGN OF QUESTIONNAIRES

Only ask for information which cannot be obtained elsewhere.

Compile all the variables arising from the objectives and table outlines

Select appropriate questions according to precisely formulated objectives.

Specify only one variable, trait or event for each individual question.

Do not construct questions which are open to varying interpretations by the respondents or interviewers.

Do not construct questions which are leading or too general and make sure that all written statements are positive

Check whether an open-ended question can be replaced by a multiple-choice question. If yes, ensure that all reasonable alternatives are provided.

Arrange the questions in a logical order and take care that they sustain the interest of the respondent. The respondent's memory should be enough to answer the questions. In other words, do not ask for an unreasonable amount of investigation by the respondent.

Take care when collecting data on sensitive issues that the respondent is not offended.

Make sure that the completion of the questionnaire is efficient and manageable for the interviewer.

Design the layout of the questionnaire carefully considering that the cover page should have a clear identification of the studied unit, that there should be a section for certification by interviewer and supervisor and that size, spacing, paper, ink and typing style can be important.

ANNEX 7

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

DISSEMINATION OF RESEARCH RESULTS

Activities proposed by the participants :

- Seminars/workshops
- Publications at national and international level
- Short reports to national (health) authorities
- Simplified versions of the research reports to local authorities
- Scientific reports to WHO and other international organizations
- Conferences, publications for researchers/university people
- Popular drama/literature
- Interviews and articles in local newspapers (local language)
- Presentations in radio and television

Target groups for dissemination activities :

- National authorities (Ministry of Health etc)
- Regional and local authorities
- Development/health projects
- WHO, UNICEF, World Bank
- Local communities
- Traditional practitioners
- Prescribers
- Trainers/teaching and training institutes
- Non Governmental Organizations active in the health field
- Consumers
- Private sector (pharmacists, wholesalers, pharmaceutical industries, etc)



ANNEX 8

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

LIST OF PERIODICALS

1. Social Science and Medicine.
2. Medical Anthropology Quarterly.
3. Health Policy and Planning.
4. Lancet.
5. Tropical Research Bulletin - London School of Hygiene.
6. International Journal of Health Services.
7. Human Organization.
8. East African Medical Journal.
9. Tropical Doctor.
10. Medical Anthropology.
11. International Journal of Epidemiology.
12. Culture, Medicine and Psychiatry.
13. The World Health Forum.
14. Tropical and Geographical Medicine.
15. Essential Drug Monitor.
16. Canadian Journal of African Studies.
17. Africa.
18. Cahiers d' Etudes Africaines.
19. Pharmacy International.

ANNEX 9

Social Science Research Workshop  
26-30 September 1988  
Nairobi, Kenya

LIST OF WHO RESEARCH PRIORITIES

## **POLICY ISSUES**

### **PAST/PRESENT RESEARCH PROJECTS :**

**HEALTH IMPACT OF ESSENTIAL DRUGS POLICIES (MEXICO, TANZANIA)**

### **FUTURE RESEARCH TOPICS :**

**IMPACT OF ESSENTIAL DRUGS PROGRAMMES ON DIFFERENT SOCIO-ECONOMIC GROUPS**

**CONSEQUENCES OF STRUCTURAL ADJUSTMENT POLICIES FOR THE AVAILABILITY AND ACCESSIBILITY OF DRUGS**

**ORGANIZATIONAL DETERMINANTS, PROBLEMS AND CONSTRAINTS IN THE IMPLEMENTATION OF ESSENTIAL DRUGS POLICIES**

**COMPLEMENTARITY OF TRADITIONAL AND MODERN MEDICINE**

**DETERMINANTS OF HEALTH : QUALITY OF LIFE VERSUS USE OF DRUGS**



# **ECONOMICS**

## **PAST/PRESENT RESEARCH PROJECTS :**

**PEOPLES EXPENDITURES ON MEDICINES**

## **FUTURE RESEARCH TOPICS :**

**EXTENT AND COST OF NON-COMPLIANCE**

**IMPACT OF DIFFERENT FINANCING MECHANISMS ON THE USE OF DRUGS AND HEALTH SERVICES**

**EQUITY ISSUES IN DRUG FINANCING**

**FOREIGN EXCHANGE IMPLICATIONS OF LOCAL PRODUCTION**

**DEVELOPMENT OF PRACTICAL ACCOUNTING METHODS FOR DRUG COST RECOVERY**

**POTENTIAL OF PRICING MECHANISMS IN PROMOTING THE USE OF ESSENTIAL DRUGS**

**ECONOMIC FACTORS INFLUENCING PATIENT BEHAVIOUR**

**MECHANISMS FOR ASSURING ADEQUATE FOREIGN EXCHANGE FOR IMPORT OF DRUGS**

Annex 9

# **DRUG SUPPLY AND TECHNOLOGY TRANSFER**

## **PAST/PRESENT RESEARCH PROJECTS :**

**STABILITY OF DRUGS DURING INTERNATIONAL TRANSPORT**  
**INCLUSION OF CONTRACEPTIVES IN ESSENTIAL DRUGS PROGRAMMES**  
**EFFECTIVENESS OF COMPUTERIZED DRUG REGISTRATION SYSTEMS**  
**EFFECTIVENESS OF DRUG KIT DISTRIBUTION SYSTEM**

## **FUTURE RESEARCH TOPICS :**

**ASSESSMENT OF ALTERNATIVE PROCUREMENT SYSTEMS**  
**ALTERNATIVE DRUG DISTRIBUTION STRATEGIES**  
**ANALYSIS OF DIFFERENT COMPUTERIZED DRUG PROCUREMENT SYSTEMS**  
**EFFECTIVENESS OF COMPUTERIZED DRUG INVENTORY CONTROL SYSTEMS**



## **DRUG USE**

### **PAST/PRESENT RESEARCH PROJECTS :**

ESTIMATION OF DRUG REQUIREMENTS

THE IMPACT OF AIDS ON DRUG NEEDS AND ESSENTIAL DRUGS PROGRAMMES

UTILIZATION OF DELPHI TECHNIQUE FOR POPULATION-BASED MORBIDITY ASSESSMENT

INJECTION PRACTICES

DETERMINANTS OF PRESCRIBING PRACTICES

PEOPLE'S PERCEPTION AND USE OF DRUGS

USE OF DRUGS BY COMMUNITY HEALTH WORKERS

### **FUTURE RESEARCH TOPICS :**

UTILIZATION OF ALLOPATHIC DRUGS BY TRADITIONAL HEALERS

DRUG UTILIZATION AT VARIOUS LEVELS OF THE HEALTH CARE SYSTEM

SELF-MEDICATION

DETERMINANTS OF NON-COMPLIANCE

INTERVENTION STRATEGIES TO PROMOTE THE RATIONAL USE OF DRUGS

RELATIONSHIP BETWEEN PATIENT AND HEALTH CARE PROVIDER IN PUBLIC AND PRIVATE HEALTH CARE SETTINGS : CONSEQUENCES FOR DRUG USE

INFLUENCE OF PACKAGING, PRESENTATION AND DOSAGE FORM ON THE DEMAND FOR DRUGS

EFFECTIVITY OF MORBIDITY RECORDING AT OUTPATIENT CLINICS







